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88-315

No. _____

IN THE

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1987

NATIONAL-SOUTHWIRE ALUMINUM COMPANY,

Petitioner,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
LEE A. THOMAS, Administrator, and
JACK E. RAVEN, Regional Administrator,

Respondents.

ON WRIT OF CERTIORARI TO

THE UNITED STATES COURT OF APPEALS

FOR THE SIXTH CIRCUIT

APPENDIX C TO PETITION FOR WRIT OF CERTIORARI

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National-Southwire Aluminum Company

No. _____

NATIONAL-SOUTHWIRE ALUMINUM COMPANY,

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,
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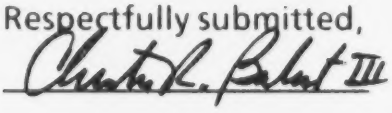
APPENDIX A TO PETITION FOR WRIT OF CERTIORARI

Petitioner, National-Southwire Aluminum Company, by its attorneys Babst, Calland, Clements & Zomnir, P.C., files the following Appendix C for the above-captioned Petition for Writ of Certiorari.

Respectfully submitted,



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Technical Support Document for the
Revision to Kentucky's §111(d) Plan for
Controlling Fluoride Emissions from
Existing Primary Aluminum Reduction Plants

Introduction

On April 3, 1986, the State of Kentucky submitted to EPA a revision to their 111(d) plan for controlling fluoride emissions from existing primary aluminum reduction plants. This revision included a change in the regulations which apply to National Southwire Aluminum Company (NSA) in Hawesville, Kentucky. NSA is the only aluminum plant in the State which uses a wet scrubbing system to remove gaseous fluoride emissions, and is thus the only facility affected by this 111(d) plant revision.

The original Kentucky plan for controlling fluoride from existing primary aluminum reduction plants was approved by EPA on May 26, 1982 (47 FR 22955). The plan regulated the two existing aluminum plants in the State (one of which was NSA) and included Kentucky's air pollution control regulation 401 KAR 61:165 (Existing Primary Aluminum Reduction Plants). This rule contained, among other requirements, emission standards for particulates and gaseous fluorides. Since NSA utilized a wet scrubbing system, it was limited to 1.0 pounds of gaseous fluoride emissions per ton of aluminum produced (1lb/ton Al) through the primary control system, and to 3.25 pounds of gaseous fluorides per hour (1lb/hr) through any potroom roof monitor. NSA was also subject to a particulate standard of 0.01 grains per standard cubic foot (gr/scf). The other primary aluminum plant utilized a dry scrubbing system; it was subject to a total fluoride emission limit of 1.9 lb/ton Al (with certain exceptions made for emissions up to 2.5 lb/ton Al when the control system was properly operating). The New Source Performance Standard (NSPS) for this type of aluminum reduction plant is 1.9 pounds of total fluoride per ton of aluminum produced.

The NSA plant was originally constructed in the late 1960's. Since dry scrubbing technology was not commercially available at that time, the company installed wet scrubbers to control both particulate emissions and gaseous fluorides. After several years of operation, it became evident that the wet scrubbing system was not an effective means of controlling particulates. Thus, in 1979, NSA installed eight dry electrostatic precipitators (ESPs) to more efficiently capture the particulate matter in the primary control gas stream. The wet scrubbers were used after the ESPs to further control gaseous fluoride emissions. Several years later, during a maintenance-related shutdown of the wet scrubbing system, NSA's ambient monitors detected no drastic change in ambient fluoride levels as a result of not scrubbing the exhaust gases. In 1983, the company asked the State for an exemption from 401 KAR 61:165 so they could permanently shut down their scrubbers. Since the State believed this shutdown would not cause a violation of the State's ambient fluoride standard, they granted the exemption and pursued a revision to their federally-approved 111(d) plan.

The revision, as submitted to EPA on April 3, 1986, contains several changes to 401 KAR 61:165. First, the State has increased the allowable gaseous fluoride emission limit for NSA's primary control system from 1.0 lb/ton Al to 290 lb/hr (13.18 lb/ton Al). The limit on particulate emissions will remain unchanged. Secondly, they have added a minimum stack height requirement for the primary control system. This height of 400 feet is the height of the current primary control system stack at NSA. It was included in the regulation solely to ensure that NSA will not use a lower stack. Use of a lower stack could cause an increase in ambient fluoride levels because less dispersion would occur. The stack is not subject to EPA's recent stack height regulation revisions because it was built prior to January 1, 1971, and is considered to be "grandfathered". Third, the State has deleted

the definition of "wet scrubbing plant" because it is no longer needed. Every instance where the words "wet scrubbing plant" appeared in 401 KAR 61:165, the State has replaced them with the words "primary aluminum reduction plant other than a dry scrubbing plant". Fourth, the State has added a provision which states that a physical change in the plant (or in the method of operation of the plant) which occurs in order to comply with the new emission limit is not considered to be a "modification". All of the above revisions to 401 KAR 61:165 are acceptable except for the exemption of NSA from "modification" status. These rule changes and the criteria for their approval/disapproval will be discussed in subsequent sections.

Approval Criteria for New Emission Limit

Under §111(d) of the Clean Air Act and Subpart B of 40 CFR Part 60, states are required to develop plans for controlling designated pollutants from designated facilities. Designated pollutants are pollutants which are not criteria or hazardous pollutants (as listed under §108 or §112 of the Act), but for which standards of performance for new sources have been established under §111(b). A designated facility is an existing facility which emits a designated pollutant and which would be subject to a New Source Performance Standard for that pollutant if the facility were new.

EPA has drawn a distinction between designated pollutants which may endanger public health and those for which adverse effects on public health have not been demonstrated. The Administrator has determined that fluoride emissions from primary aluminum plants may cause adverse effects on public welfare but that they do not pose a threat to public health. For health-related pollutants, state emission standards must ordinarily be at least as stringent as the corresponding EPA guideline emission limits. However, for welfare-related pollutants, states may

apply less stringent requirements when those requirements are justified by economic factors or physical limitations.

Under current EPA requirements, states have been given substantial flexibility in establishing plans for the control of welfare-related pollutants such as fluorides. This policy is stated in 40 CFR 60.24(d) as follows:

> Where the Administrator has determined that a designated pollutant may cause or contribute to the endangerment of public welfare but that adverse effects on public health have not been demonstrated, states may balance the emission guidelines, compliance times, and other information provided in the applicable guideline document against other factors of public concern in establishing emission standards, compliance schedules and variances.

Although this flexible policy applies to the original development of 111(d) plans, similar criteria may be considered when reviewing revisions to existing state regulations for welfare-related pollutants.

Kentucky has justified their request for a more lenient gaseous fluoride emission limit through cost figures, process descriptions and an environmental impact assessment. EPA has reviewed this documentation against the factors contained in the guideline document and has found that the State's request is adequately justified by economic, technical and other related criteria.

Recommended Control Technology

EPA's guideline document (EPA 450/2-78-049b, December 1979) sets out the recommended technology for controlling particulate and gaseous

fluorides from existing primary aluminum reduction plants. The prescribed fluoride emission controls are not expressed in terms of emission limitations, but as equipment specifications for achieving a certain level of control. EPA's guideline document emphasizes that the installation of fluoride controls in existing plants varies greatly in capital expenditures and operating costs. Therefore, actual control requirements must be specific to the plant and tailor-made for it. The guidelines further state that control officials should carefully study costs, ambient impacts and energy requirements before requiring improved control on any particular facility.

The primary aluminum reduction process results in two types of emissions: those which are captured by the hood system and are vented through the primary control device (primary emissions) and those which elude the hood system and exit the building through the roof monitors (secondary emissions). EPA has determined that the best control for existing aluminum plants is an effective hooding system (to minimize secondary emissions) in combination with primary removal equipment. Most plants do not (and are not required to) control secondary emissions. NSA does not have secondary emission controls, but is subject to a gaseous fluoride emission standard for their eight roof monitors, as well as to a total limit on visible emissions from the plant. Total fluoride emissions from the aluminum process consist of both particulate fluorides and gaseous fluorides. Therefore, the primary control equipment should be designed to remove both constituents. The most typically used primary control equipment is a wet or a dry scrubbing system. ESPs can also be used, but are less effective in controlling the gaseous portion of total fluoride emissions.

National Southwire Aluminum - Present Control Options

The current control technology being used at NSA consists of hooding, multicyclones, dry ESPs and wet scrubbers (in that order). This combination has shown to be an overly effective means of controlling total fluoride emissions, but has also resulted in exhorbitant control costs. In an effort to cut production expenses, NSA has asked the State to allow them to shut down the wet scrubbing system. This would leave the primary control system as consisting of collection hoods, multicyclones and dry ESPs. This control combination has also shown to be an effective means of controlling fluoride emissions (at a reasonable cost). A third option available to the company would be to install a dry scrubbing system. The use of wet scrubbers as a sole means of controlling fluorides has already been shown to be ineffective and is therefore not a viable control option.

Justification for New Emission Limit

National Southwire has requested a relaxation in the gaseous fluoride emission standard as it applies to their facility. By allowing 290 lb/hr to be discharged from the primary control system, the State will be allowing NSA to remove their wet scrubbing system and still comply with the requirements of 401 KAR 61:165. The State has submitted an economic justification for the approval of this new limit, as well as the data to show that the new limit will not cause any ambient problems.

A. Cost Analysis

In the table below, capital and annualized costs are given for the various control options available to NSA. The costs for the various control scenarios were derived by NSA and submitted to EPA with the State's 111(d) plan revision. EPA's typical control costs were taken from the guideline document (p. 8-4). All cost figures have been adjusted to 1985 dollars using the Engineering News Record Construction Cost Index

(ENR, Vol. 216, No. 12, March 20, 1986, p. 107), and are based on a production rate of 212,000 tons of aluminum per year (TPY Al). See Appendix I for detailed cost calculations.

Control Cost Comparisons

Control Option	Capital (1985/annual ton Al)	Annualized Costs (1985$/ton Al)
NSA-ESPs + Wet Scrubbers	247.74	24.73
NSA - ESPs	180.42	14.25
NSA - Dry Scrubbers	142.74	8.09
EPA - Guideline Controls	119.24	5.00

All of the above control scenarios have costs which exceed EPA's typical (or expected) control costs. NSA is currently operating both the ESPs and the wet scrubbers. Although the initial capital cost associated with that equipment has already been expended, the operation of the control equipment costs NSA $24.73 per annual ton of aluminum produced. This is nearly five times EPA's typical annualized control costs. NSA has requested (through this 111(d) plan revision) that they be allowed to operate the ESPs without the wet scrubbers. The annualized cost of operating the ESPs has been estimated at $14.25 per ton of aluminum produced. This value also exceeds EPA's typical costs,

but the operation of just the ESPs would provide a significant cost savings for the company. Although the capital and annualized costs for the installation and operation of dry scrubbers are less than for the previous two options, the company would have to totally rework their primary control system. They would also be forced to spend the initial capital to purchase new controls when they already have sufficient controls installed. NSA has also claimed that for certain process-related reasons, dry scrubbing is not a realistic control alternative. Because dry scrubbing allows the reuse of fluorides in the production process, other materials such as iron and silicon are also introduced. This compromises the purity of the aluminum produced by NSA and is unacceptable when considering the demands of the aluminum market.

Thus, from an economic standpoint, NSA has already spent and will continue to spend over and above what is expected for controlling total fluoride emissions from their plant. The relaxation of NSA's gaseous fluoride emission limit is consistent with EPA's handling of 111(d) plant relaxations. Since NSA's future control costs (for the ESPs only) would not drop below EPA's guideline costs, the new emission limit of 290 lb/hr appears to be approvable.

B. Ambient Analysis

NSA has also justified the relaxation of their primary control emission standard by assessing the air quality impact of the increase in gaseous fluoride emission levels. By removing the wet scrubbers (and changing allowable emissions from 1.0 lb/ton Al (22 lb/hr) to 290 lb/hr (13.18 lb/ton Al)) the company has estimated that an additional 1174 TPY of gaseous fluorides will be vented to the atmosphere. NSA has shown through ambient monitoring data and modeling analyses that this increase in emissions will not have a harmful effect on the environment.

Although EPA has not adopted a federal ambient air quality standard for fluorides, the State of Kentucky has. This standard is based on the ambient concentrations which could cause adverse effects on vegetation. It specifies maximum 1-month, 1-week, 24-hour and 12-hour average concentrations. The maximum 12-hour average standard is 4.5 parts per billion (ppb).

During the period of March 1983 to March 1984, NSA was granted an exemption by the State to operate without their wet scrubbing fluoride removal system. During that period, the company collected ambient fluoride data at eight sites around their facility. This data showed no detectable increase in ambient fluoride concentrations over similar monitoring data collected while the scrubbers were in operation (1980-1982). Furthermore, the measured concentrations never exceeded ambient standards except for a few scattered violations over the four years which occurred on plant property, 800 meters from the stack. These violations occurred under both control scenarios (scrubbers off and scrubbers on) and are irrelevant as far as EPA is concerned, because there is no federal ambient standard for fluorides.

The company has also performed a vegetative analysis to document that the increase in fluoride emissions from their plant will not cause a detrimental effect on the foliage in the area.

NSA also presented modeling results to show that the new emission limit will not endanger the environment. An Industrial Source Complex Short-Term Model was used, assuming a fluoride emission rate of 350 lb/hr (approximately 20% greater than the 290 lb/hr allowable limit). Modeling results predicted the highest impact to be 2.598 ug/m^3 (12-hour average) at a distance of 11 kilometers from the source. That value is only 71% of the State's ambient air quality standard. Because §111(d) of the Clean Air Act does not establish any ambient standards, the

modeling performed by NSA is legally irrelevant. However, it does provide an indication of the insignificant environmental effects of this 111(d) plan revision.

Disapproval of "Modification" Provision

As part of this 111(d) plan revision, the State of Kentucky has revised the "Applicability" portion of 401 KAR 61:165 to state that a change in potroom operations (eg. scrubber shutdown) at NSA would not be considered a "modification" for the purposes of New Source Performance Standards. If the shutdown of the scrubbers was classified as a "modification", then the source would become subject to the New Source Performance Standard (NSPS) for primary aluminum reduction plants (40 CFR Part 60, Subpart S) and be required to meet more stringent federal control requirements than are allowed under §111(d) (40 CFR Part 60, Subpart B). (See Appendix II for a more detailed description of this argument.)

It has been argued, based upon various provisions in 40 CFR Part 60, that since 40 CFR 60.28 provides for the relaxation of emission standards in 111(d) plants, EPA must have intended that existing facilities could increase their emissions up to the relaxed standards without triggering the applicability of New Source Performance Standards. Such an argument is clearly contrary to the controlling statutory provisions of §111. Under that Section, any physical change in, or change in the operation of, a facility that increases emissions is a modification that triggers NSPS applicability. Further, nothing in §111(d) authorizes EPA to approve a state's rules that could exempt an existing facility from the other provisions of Section 111. For this reason Kentucky's provision for exempting NSA's "change in operation" from "modification" status is unapprovable.

The disapproval of this paragraph does not mean that a state cannot relax its 111(d) standards through a

plant revision, nor does it mean that existing sources cannot benefit from such a relaxation. Existing sources that were never able to meet a §111(d) standard would obviously benefit from a relaxation of that standard. Thus, if National Southwire had been emitting 290 lb/hr of fluoride before the date the NSPS for primary aluminum reduction plants was proposed, the relaxation EPA is approving would bring the facility into compliance with the §111(d) plan, and NSPS would not be triggered because there would be no increase in emissions.

Conclusion

Except for the revisions to Section 1 of 401 KAR 61:165 (Applicability), the plan revision for National Southwire Aluminum is approvable under the provisions of §111(d) of the Clean Air Act and 40 CFR Part 60, Subpart B. Although NSA is justifiably allowed to remove their wet scrubbers under §111(d), they may do so only at the risk of becoming subject to more stringent emission standards. For, under 40 CFR 60.14(e), NSA would be undergoing a "modification" and would be subject to the NSPS for primary aluminum plants found in 40 CFR Part 60, Subpart S.

CERTIFICATE OF SERVICE

I hereby certify that I served three true and correct copies of the foregoing Appendix to be mailed first class, postage prepaid, this 19th day of August, 1988 upon:

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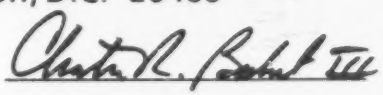

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